

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An apparatus for acquiring and reading optical codes, comprising:

- means for acquiring the optical code, having at least one acquisition light source, and means for generating an acquisition light pattern at the optical code,

- means for reading the acquired optical code, and

- means for visually indicating the reading result;

~~characterised in that said visual indication means comprises~~ comprising:

- at least one indication light source, distinct from or coinciding with, the at least one acquisition light source of said acquisition means,

- means for imposing an information content indicating the reading result to the light emitted by said at least one indication light source, and

- means for projecting the light, having the imposed information content, substantially at the optical code,

- wherein the visual indication means are arranged so that the light at the optical code forms at least one luminous figure having the imposed information content and being different from the acquisition light pattern at least in one of shape and size.

2. (Currently Amended) Apparatus according to claim 1, characterised in that said means for acquiring comprises means for illuminating the optical code, means for detecting the light diffused by the code and means for transforming said detected diffused light into a signal representing the acquired code, wherein said means for reading the optical code comprises means for communicating said signal representing the acquired code to a remote processing unit and for receiving the reading result therefrom.

3. (Previously Presented) Apparatus according to claim 1, characterised in that said means for imposing the information content comprises a switch for turning on and off said at least one indication light source.

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4. (Previously Presented) Apparatus according to claim 1, characterised in that said means for imposing the information content comprises at least one element for selectively transmitting the light generated by the at least one indication light source.

5. (Currently Amended) Apparatus according to claim 4, characterised in that said selective transmission element is selected from the group comprised of a diffractive element, a diaphragm having a predetermined shape, a slide, a reflecting surface having a predetermined shape, and a shutter.

6. (Original) Apparatus according to claim 4, characterised in that said selective transmission element is selected from the group comprised of a diffractive element and a hologram.

7. (Previously Presented) Apparatus according to claim 1, characterised in that said means for imposing the information content comprises a driving circuit of said at least one light source.

8. (Original) Apparatus according to claim 7, characterised in that said driving circuit is suitable to drive said at least one indication light source also in such an operating condition that said at least one indication light source is said acquisition light source during the acquisition of the optical code.

9. (Previously Presented) Apparatus according to claim 7, characterised in that said at

least one indication light source is a light source capable of emitting light of at least two chromatic components, and said driving circuit is suitable to drive said at least one indication light source so as to generate each time light of one or more of said chromatic components.

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10. (Previously Presented) Apparatus according to claim 7, characterised in that said driving circuit is suitable to switch on said at least one indication light source at least intermittently.

11. (Previously Presented) Apparatus according to claim 7, characterised in that said driving circuit is suitable to modulate the intensity of said at least one indication light source.

12. (Previously Presented) Apparatus according to claim 1, characterised in that said means for projecting the light comprises at least one converging lens for collimating the light and focusing it substantially at the optical code.

13. (Previously Presented) Apparatus according to claim 1, characterised in that said means for projecting the light is comprised of the illumination optics of said acquisition means.

14. (Previously Presented) Apparatus according to claim 1, characterised in that said means for projecting the light is comprised of the receiving optics of said acquisition means.

15. (Previously Presented) Apparatus according to claim 1, characterised in that said visual indication means also comprises second means for projecting the light emitted by said at least one light source towards the operator of the apparatus.

16. (Previously Presented) Apparatus according to claim 1, characterised in that said visual indication means also comprises second means for projecting a second light emitted by a second indication light source towards the operator of the apparatus.

17. (Previously Presented) Apparatus according to claim 1, characterised in that it further comprises acoustic indication means associated to said result indication means.

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18. (Currently Amended) Method for acquiring and reading optical codes comprising the steps of:

(a) acquiring and reading an optical code ~~through an optical code acquiring and reading apparatus,~~ wherein said acquiring comprises illuminating the optical code with an acquisition light pattern and

(b) visually indicating the result of said reading step (a), ~~characterised in that said indication step (b) is carried out by generating at least a one luminous information figure substantially at the optical code,~~ wherein said at least one luminous figure differs from the acquisition light pattern at least in one of shape and size.

19. (Currently Amended) Method ~~according to claim 18~~ for acquiring and reading optical codes comprising the steps of:

(a) acquiring and reading an optical code through an optical code acquiring and reading apparatus. ✓

(b) visually indicating the result of said reading step (a) by generating at least one luminous information substantially at the optical code, ~~characterised by the step and~~ ✓

(c) ~~of discriminating the result of said reading step (a), and in that wherein~~ said indication step (b) is carried out by generating a predetermined luminous information associated to the particular result discriminated in step (c).

20. (Original) Method according to claim 19, characterised in that said result discrimination step (c) is carried out by discriminating between positive result and negative result.

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21. (Original) Method according to claim 19, characterised in that said result discrimination step (c) is carried out by discriminating among positive result and at least two different negative results.

22. (Previously Presented) Method according to claim 18, characterised in that said indication step (b) is carried out only after having repeated said reading step (a) for a predetermined number of times receiving a negative result.

23. (Previously Presented) Method according to claim 19, characterised in that said predetermined luminous information generated in said indication step (b) is differentiated by hue, shape and/or dynamics of the luminous intensity.

24. (Previously Presented) Method according to claim 18, characterised in that said indication step (b) is carried out by further generating at least a second luminous information at the optical code acquiring and reading apparatus.

25. (Original) Method according to claim 24, wherein said luminous information generated substantially at the optical code is turned off before turning off said second luminous information at said optical code reading apparatus.

26. (Currently Amended) An apparatus for acquiring and reading an optical code, said apparatus comprising:

an optical code reader, having an illuminator of said optical code and a reader of said illuminated optical code, wherein said illuminator generates at the optical code an

acquisition light pattern; and

an indicator of optical code reading status, said indicator including a projector of visible illumination on an area associated with said optical code in response to a result of a reading of said optical code by said optical code reader, wherein said projector projects light forming on said area at least one luminous figure which differs from said acquisition light pattern in at least one of shape and size.

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27. (Previously Presented) An apparatus according to claim 26, wherein said indicator comprises a visible light projector projecting visible light upon at least a portion of said optical code.

28. (Currently Amended) An apparatus according to claim 26, wherein said indicator comprises an element for selective transmission of said visible light, said element comprising at least one of a diffractive element, a diaphragm having a predetermined shape, a slide, a reflecting surface having a predetermined shape, a shutter, and a hologram.

29. (Previously Presented) An apparatus according to claim 27, wherein said visible light projector includes a light source emitting at least two chromatic components, and, in response to said result, said projector emitting one of the at least two chromatic components.

30. (Previously Presented) An apparatus according to claim 27, wherein said projector includes at least one convergent lens for collimating projected light and focussing said light on said optical code.

31. (Previously Presented) An apparatus according to claim 26, wherein said indicator includes an acoustic indicator.

32. (Currently Amended) A method of acquiring and reading an optical code, said method comprising the steps of:

(a) acquiring and reading an optical code with an optical code reading apparatus, wherein said acquiring comprises illuminating the optical code with an acquisition light pattern; and

(b) providing, at said optical code, a visible indication of a result of said acquiring and reading step, said visible indication being at least one luminous figure different from said acquisition light pattern in at least one of shape and size.

33. (Previously Presented) The method of claim 32, wherein said acquiring and reading step provides an output indicative of a completed successful reading of said optical code, and, in response to said output, said providing step provides a visible indication of said completed successful reading of said optical code.

34. (Previously Presented) The method of claim 32, wherein said acquiring and reading step provides an output indicative of a completed unsuccessful reading of said optical code, and, in response to said output, said providing step provides a visible indication of said completed unsuccessful reading of said optical code.

35. (Previously Presented) The method of claim 33, wherein said acquiring and reading step provides an output indicative of a completed unsuccessful reading of said optical code, and, in response to said output, said providing step provides a visible indication of said completed unsuccessful reading of said optical code.

36. (Previously Presented) The method of claim 35, wherein said visible indications of said unsuccessful reading and said successful reading are different in at least one of hue, shape and luminosity.

37. (Currently Amended) An apparatus for acquiring and reading optical codes, comprising:

means for acquiring the optical code through illumination of the code with an acquisition light pattern, detection of the light diffused by the code, and its transformation into an electric signal, having at least one acquisition light source,

means for reading the acquired optical code through processing of the electric signal and its interpretation or decoding, and

means for visually indicating the reading result,

characterised in that said visual indication means comprises:

at least one indication light source, distinct from or coinciding with, the at least one acquisition light source of said acquisition means,

means for imposing an information content to the light emitted by said at least one indication light source, said information content indicating the result of the reading performed by said means for reading, and

means for projecting the light, having the imposed information content, substantially at the optical code, wherein the visual indication means are arranged so that the light at the optical code forms at least one luminous figure different from the acquisition light pattern at least in one of shape and size.

38. (Currently Amended) Method for acquiring and reading optical codes comprising the steps of:

(a) acquiring an optical code through an optical code acquiring and reading apparatus, wherein said acquiring comprises illuminating the optical code with an acquisition light pattern and generating an electric signal representative of said optical code,

(b) reading the acquired optical code through said optical code acquiring and reading apparatus, wherein said reading comprises processing said electric signal and

interpreting or decoding it, and

(c) visually indicating the result of said reading step (b),

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characterized ~~characterised~~ in that said indication step (c) is carried out by generating at least a luminous ~~information-figure~~ substantially at the optical code different from the acquisition light pattern in at least one of shape and size.

39. (New) An apparatus for acquiring and reading optical codes, comprising:

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- means for acquiring the optical code, having at least one acquisition light source,
an illumination optics and a receiving optics,

- means for reading the acquired optical code, and

- means for visually indicating the reading result,

said visual indication means comprising:

-- at least one indication light source distinct from the at least one acquisition light source, ✓

-- means for imposing an information content indicating the reading result on the light emitted by said at least one indication light source, and ✓

-- means for projecting the light emitted by said at least one indication light source substantially at the optical code, ✓

- whereby the light at the optical code forms at least one figure having the imposed information content,

wherein all optical elements of said means for visually indicating the reading result are distinct from the illumination optics.

40. (New) Apparatus according to claim 39, characterised in that said means for imposing the information content comprises at least one element for selectively transmitting the light generated by the at least one indication light source.

41. (New) Apparatus according to claim 40, characterised in that said selective

transmission element is selected from the group comprised of a diffractive element, a diaphragm having a predetermined shape, a slide, a reflecting surface having a predetermined shape and a shutter.

42. (New) Apparatus according to claim 40, characterised in that said selective transmission element is selected from the group comprised of a diffractive element and a hologram.

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43. (New) Apparatus according to claim 39, characterized in that all optical elements of said means for visually indicating the reading result are distinct from the receiving optics of said acquisition means.

44. (New) Apparatus according to claim 39, characterized in that said means for projecting the light is comprised of the receiving optics of said acquisition means.

45. (New) Apparatus according to claim 39, characterized in that said means for imposing the information content comprise a two-dimensional laser scan-engine.

46. (New) An apparatus for acquiring and reading optical codes, comprising:

- means for acquiring the optical code, through illumination of the code with an acquisition light pattern, having at least one acquisition light source,
 - means for reading the acquired optical code, and
 - means for visually indicating the reading result,
- characterized in that said visual indication means comprises:
- at least one indication light source, distinct from or coinciding with, the at least one acquisition light source,
 - means for imposing an information content indicating the reading result on the light emitted by said at least one indication light source, and

- means for projecting the light emitted by said at least one indication light source substantially at the optical code,

whereby the light at the optical code forms at least one luminous figure having the imposed information content,

characterized in that said means for reading the acquired optical code comprises means for discriminating between at least two different reading results and in that said means for visually indicating the reading result are arranged so that said at least one luminous figure is distinguishable from the acquisition light pattern for each result discriminated by said means for discriminating.

47. (New) Apparatus according to claim 46, characterised in that said means for imposing the information content comprises at least one element for selectively transmitting the light generated by the at least one indication light source.

48. (New) Apparatus according to claim 47, characterised in that said selective transmission element is selected from the group comprised of a diffractive element, a diaphragm having a predetermined shape, a slide, a reflecting surface having a predetermined shape and a shutter.

49. (New) Apparatus according to claim 47, characterised in that said selective transmission element is selected from the group comprised of a diffractive element and a hologram.

50. (New) Apparatus according to claim 46, characterised in that said means for imposing the information content comprises a driving circuit of said at least one light source.

51. (New) Apparatus according to claim 50, characterised in that said driving circuit is suitable to drive said at least one indication light source also in such an operating

condition that said at least one indication light source is said acquisition light source during the acquisition of the optical code.

52. (New) Apparatus according to claim 50, characterised in that said at least one indication light source is a light source capable of emitting light of at least two chromatic components, and said driving circuit is suitable to drive said at least one indication light source so as to generate each time light of one or more of said chromatic components.

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53. (New) Apparatus according to claim 46, characterised in that said means for imposing the information content comprise a two-dimensional laser scan-engine.

54. (New) Method for acquiring and reading optical codes, comprising the steps of:

(a) acquiring an optical code, by illuminating the optical code with an acquisition light pattern, ✓

(b) reading the acquired optical code, and ✓

(c) visually indicating the result of said reading step (b) by generating at least one luminous figure substantially at the optical code, ✓

characterized by the step (d) of discriminating between at least two different results of said reading step (b) and in that in said indication step (c) said at least one luminous figure is distinguishable from the acquisition light pattern for each result discriminated in said step (d).

55. (New) Method according to claim 54, characterised in that said visual indication step (c) comprises the substep of imposing to said at least one luminous figure an information content broader than the mere indication of whether the optical code has been read or not.

56. (New) Method according to claim 55, characterised in that said step (d) of discriminating comprises discriminating between different reasons of negative reading

result and said visual indication step (c) comprises the substep of imposing on said at least one luminous figure an information content indicative of the reason of negative reading result.

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57. (New) Method according to claim 55, characterised in that said step (d) of discriminating comprises discriminating according to at least part of the content of a positively read optical code and said visual indication step (c) comprises the substep of imposing on said at least one luminous figure an information content related to said at least part of the content of the positively read optical code.

58. (New) Method according to claim 54, characterised in that said step (d) of discriminating is carried out by discriminating between a positive result and a negative result.

59. (New) Method according to claim 54, characterised in that said step (d) of discriminating is carried out by discriminating among a positive result and at least two different negative results.

60. (New) Method according to claim 54, characterised in that said predetermined luminous figure generated in said indication step (c) is differentiated by hue, shape and/or dynamics of the luminous intensity.
